Quintella, B.R., B.J. Clemens, T.M. Sutton, **M.J. Lança**, A. Happel and C. Harvey (2021) – “At Sea Feeding Ecology of Parasitic Lamprey.” *Journal of Great Lakes Research, vol 47 (suppl. 1): S72-S89. DOI: 10.1016/j.jglr.2021.07.008*

Abstract

This paper synthesizes information on the at-sea ecology of ten anadromous lampreys, with emphasis on [trophic ecology](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/trophic-ecology). The at-sea ecology of these lampreys concerns the juvenile stage, in which growth is most rapid. Anadromous lampreys can be categorized into four groups, based on feeding modalities: 1) scavenger (Caspian lamprey, *Caspiomyzon wagneri*); 2) parasite-predator (Pacific lamprey, *Entosphenus tridentatus*); 3) predators (western river lamprey, *Lampetra ayresii*; European river lamprey, *L. fluviatilis*; Arctic lamprey, *Lethenteron camtschaticum*; pouched lamprey, *Geotria australis*; and Argentinian pouched lamprey, *G. macrostoma*); and 4) parasites (sea lamprey, *Petromyzon marinus*; Chilean lamprey, *Mordacia lapicida*; and short-headed lamprey, *M. mordax*). This paper discusses direct evidence for lamprey feeding ecology, as observed through lamprey-induced wounds on hosts and prey, and lamprey attachments on hosts and prey; and indirect evidence for feeding ecology, via analyses of fatty acids, [stable isotopes](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/stable-isotope), contaminants, and [bioenergetics](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/bioenergetics) modelling. A part of the information presented on feeding ecology is from landlocked sea lamprey, and in some instances this information can be generalizable to anadromous populations. For most anadromous lampreys, but particularly for [Southern Hemisphere](https://www.sciencedirect.com/topics/earth-and-planetary-sciences/southern-hemisphere) taxa, little is known about their feeding ecology at sea. Duration of the trophic marine phase and habitat use are still subjects of debate. Species identified as lamprey hosts can be demersal or pelagic, possibly reflecting marine habitat preferences. To unlock understanding of the marine phase of anadromous lampreys, direct evidence of feeding ecology should be coupled with natural (i.e., biomarkers) and artificial (e.g., biologgers) markers to identify habitat use, movement patterns and dispersal.

Keywords:Anadromous; Marine trophic phase;Oceanic feeding; Petromyzontiformes